

have one or two of their bonds ruptured after irradiation by light having the same energy as that which the chemicals absorb.

Similarly, Prof. Anslow said, when light of a wavelength that is absorbed by a particular protein molecule shines on

that protein the protein is denatured. Vitamins are decomposed by light of the wavelength they absorb. Viruses are made non-virulent, without coagulation of their protein and without destruction of their immunizing power, by the particular wavelengths they absorb.

Science News Letter, July 1, 1944

CHEMISTRY

"Slow" Rubber

Experiments have shown that synthetic rubber takes longer to snap back after stretching than natural rubber does. This is a test of quality.

► DELICATE experiments to measure the infinitesimal time it takes rubber to snap back after being stretched show that it takes a few thousandths of a second for natural rubber to retract, and a longer time for synthetic rubber. These facts were reported by Prof. Eugene Guth of the University of Notre Dame, at the meeting of the American Physical Society.

The speed at which rubber snaps back is a widely used test for the quality of rubber. Good rubber must have a fast snap-back. Snap is used in rubber factories to determine the degree of vulcanization.

Using a smoked drum revolving at the high speed of 50 miles an hour, high speed photography that takes several thousand pictures a second, and a scientific sling-shot, Prof. Guth and his associates saw rubber snap back at speeds of several hundred miles an hour.

Studying the pictures made as the rubber snapped back, they discovered a very peculiar phenomenon. The middle of a strip of rubber starts to move only after all rubber in front of it contracted to an unstretched state. The rubber contracts and ripples into an unstretched state in much the same way as an earthworm moves across the surface of the ground.

Synthetic rubbers like Buna S and Butyl were found to be more sluggish than natural rubber. Prof. Guth expressed the hope that through the study of rubber snap-back, snappier and better synthetic rubbers may be developed.

Science News Letter, July 1, 1944

Stretched Rubber Is Hot

Natural and synthetic rubbers generate heat when they are stretched fast. This fact was revealed by Prof. Guth

and S. L. Dart who used an ultra-high-speed temperature recorder that can record a change of 30 degrees Fahrenheit in less than a second in their tests.

A simple demonstration of the temperature change can be made by taking an ordinary rubber band, stretching it fast, then touching it to the face or lips; it will feel warm.

Tests made on synthetic Butyl rubber showed that if a strip is stretched to nine times its original length very rapidly, there is a rise in temperature of 20 degrees Fahrenheit.

Heat generation is another quality index of synthetic rubbers. The higher the heat generation and the earlier it develops, the better is the rubber. High heat generation is due to its crystallization on stretching rapidly.

Mathematical studies on the sling-shot tests and the heat generation tests were made by Dr. Hubert M. James of Purdue University.

Science News Letter, July 1, 1944

BIOLOGY

Rare South American Toad Lays Pick-A-Back Eggs

► A SURINAM toad, a rare species from South America, has produced a batch of eggs at the National Zoological Park in Washington. This is an event so unusual that the last time it happened—ten years ago—a leading New York zoologist made a special trip to Washington just to see it, Dr. William M. Mann, director of the zoo, reported.

The Surinam toad, unlike most toads, does not lay her eggs in the water, although (again unlike most toads) she lives practically altogether in the water. Instead, she normally deposits them on her own back, with the assistance of the male. The skin of her back grows into a

pocket around each individual egg, and a little horny lid forms over the top. There will be 30 or 40 of these sealed pockets.

Within them the eggs hatch, and the tiny tadpoles that emerge remain thus sealed up until they have gone through their whole development. But all this requires help from the male and this time he seemed unwilling to cooperate.

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